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Dockets Management Branch
5630 Fisher Lane
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RE: Qualified Health Claim (Soy Protein Containing Products and Reduced Risk of Certain Cancers) (Docket No. 2004Q-0151)

This is a continuation of my letter of June 1, 2005.

I am a Bariatric Medicine practitioner in New York City and I have a United States Patent No. US 6,413,557 B1 (Texturized Soy Beverage [Whole Soy Milk]). And am writing to submit new information supporting the petition for a qualified health claim linking soy and the prevention of certain cancer and reconfirming the safety of soyfoods for American people's health benefits.

The initial petition submitted in March 2003 by the Solae Company studies linking soy protein and the prevention of breast, colon, and prostate cancer. On April 11, 2005, the Soyfood Association of North America wrote to submit new information supporting the petition for the Solae Company.

My patent Texturized Soy Beverage (Whole Soy Milk) contains dietary fibers, phytate, lecithin, polyphenols, flavors, omega-3 and omega-6 unsaturated essential fatty acids, vitamin-B complex, vitamin-E, calcium, potassium, magnesium, zinc, iron, phosphorus, chromium, selenium, phytochemicals including saponins, and 14.3 g of soy protein per serving. The FDA has suggested the intake of 25g of soy protein as an effective and the palatable consumption level, which is not contained in any other soy beverage on market in any country worldwide. My Texturized Soy Milk has more health benefits than others and therefore has been patented.

The presence of soybeans soluble fiber and phytate that are valuable in slowing to release of glucose into the blood and it has the ability to "smooth out" blood glucose levels, especially following meals (Type 2 Diabetes Mellitus). It was a major breakthrough for the treatment of diabetes when a connection was firmly established between a diet high in complex carbohydrates (In my practice, I advice

my patients to eat brown rice with barley instead of white rice and drink texturized soy beverage twice a day, take brisk walk, diet, lifestyle intervention and oral antidiabetic agents, especially people of minority groups find it very difficult to give up white rice) and resulting management or even reversal of Type 2 diabetes.
The soluble fiber in soy may have a specific role in preventing colon cancer. This is a complex issue that involves the production and balance of bacteria in the colon.

Mature soybeans contain trace amounts of monosaaccharides, such as glucose and arabinose, and measurable amounts of di- and oligosaccharides, with sucrose in the range of 2.5-8.2%; raffinose, 0.1-0.9%; and stachyose, 1.4-4.1% (Hymowitz et al. 1972). Although the presence of oligosaccharides in soybeans and soy products is generally considered undesirable in terms of then flatus activity, recent studies have shown some beneficial effects of dietary oligosaccharides in humans (Masai et al.1987, Takasoye et al. 1991, Tomomatsu 1994). These include:

1. Increasing population of indigenous bifidobacteria in colon which, by their antagonistic effect, suppress the activity of putrefactive bacteria,

2. Reducing toxic metabolites and detrimental enzymes,

3. Preventing pathogenic and autogenous diarrhea by the same mechanisms as as described in the reduction of detrimental bacteria,

4. Preventing constipation due to production of high levels of short-chin fatty acids by bifidobacteria,

5. Protecting liver function due to reduction of toxic metabolism,

6. Reducing blood pressure,

7. Having anticancer effects,

8. Producing nutrients such as vitamins, also due to increased activity of bifidobacteria.

Consequently, oligosaccharides have been developed into one of the most popular functional foods components, particularly in Japan (Tomomattsu 1994).

Phytate (inositol hexaphosphate) is present in soybeans in large amounts (Thompson and Erdman 1982, Harland and Obereas 1987). Inositol Hexaphatate is a putative antiproliferative agent and may have antioxidant activity. Some animal data suggest phytate may help to lower the risk of colon cancer (Graf and Eaton 1993). Phytate is abundant in high fiber diets, the studies at the University of Maryland explain, at least in part, the epidemirologic data suggesting that dietary phytate may have chemopreventive activity.

The saponins may have potential to reduce blood cholesterol and inhibit the formation of cancer. These phytochemicals may also have a role in weight reduction and an anti-aging effect. In addition, there is a possibility that saponins may interfere with the proliferation of HIV virus, which causes AIDS. The saponin content of soy product is approximately 0.5% on a per weight base (Fenwick and Oakenfull 1981). Saponins from various sources have been shown to have adverse effects in animals, but the saponins in soybeans appear to be relatively weak and not thought to be of much clinical or nutritional relevance (Ishaaya et al. 1969). Some research indicates saponins may reduce colon cancer risk via their interaction with the intestinal membrane (Sung et al. 1995).

Soy isoflavone have versatile and potent pharmaceutical effects, their actions in the body are well defined. Isoflavones can exert powerful antioxidant effects and have antiangiogenic activity, which means that they interfere with blood vessel growth, an important cancer-fighting property. Isoflavones are known to inhibit enzymes that promote the growth of several types of cancer. In laboratory experiments, isoflavones have been shown to directly suppress the growth of many types of cancers of human and animal origin. The estrogen-moderating effects of soy isoflavones account for their potential benefit in managing symptoms of menopause, premenstral syndrome, prostate disease, and estrogen- stimulated cancer.

The genistein has been the most studied of the soy isoflavone. Several mechanisms have been proposed for genistein's possible anticarcinogenic activity. These include upregulation of apoptosis, inhibition of angiogenesis, inhibition of DNA topoisomerease II and inhibition of protein tyrosine kinases. Genistein's weak estrogenic activity may be involved in its putative activity against prostate cancer. Other possible antiprostate cancer mechanisms include inhibition of NF (nuclear factor)-kappa B in prostate cancer cells, downregulation of TGF (transforming growth factor)-beta and inhibition of EGF (epidermal growth factor)-stimulated growth. Genistein's anti-estrogenic action may be another possible mechanism to explain its putative activity against breast cancer. Additional possible anti-breast cancer mechanisms include inhibition of aromatase activity and stimulation of sex hormone binding globubin, both of which might lower endogenous estrogen levels.

A bioactive peptide has recently been isolated from soybeans and has been found to have potent antimitotic activity

Polyphenols are believed to act at both the initiation and promotion stages of cancer development. They have been reported to interfere with tumor promotion by dampening hormones as described above for plant estrogens. Polyphenols act as "garbage collectors," disposing of cell-damaging mutagens and cancer-causing agents.

The 6th International Tea Science Symposium at Seoul, Korea, 2003, results of

several epidemiological studies reported that a correlation between green tea intake and a lower risk of esophageal cancer, cancer of oral cavity, gastric cancer and colon cancer. The observed anticancer effects are causally related to the chemical actions of the tea poylphenols. Polyphenols are compounds found in many plants including soybeans, green tea, garlic, cereal grains and vegetables such as broccoli.

Soybeans are also a good source of lecithin. The use of phosphatidylcholine (lipostabil) in the treatment of localized lipodystrophices (Aesthetic Mesotherapy) extracted from soybeans lecithin (Laboratory Aventis).

Soybeans have been found to help lower blood pressure. The theory states that a component in soybeans may act like a type of drug that is widely prescribed today for high blood pressure- angiotensin-converting enzyme (ACE) inhibitors. These drugs act on the body's production of angiotensin, an enzyme that causes arteries to constrict. ACE-inhibiting enzyme has been isolated from soy sauce, nato, miso and other fermented soy products by Japanese researchers.

I use the Texturized Soy Beverage (Whole Soy Milk) as meal replacement two times daily, for over weight and obese patients, Type 2 diabetes mellitus, hypertension, hyperlipidemia and menopausal symptoms. My patients found delicious and great taste, sense of fullness or satiety and became thirsty and drank increased amounts of water and softens and enlarges the stool and preventing straining.

The results are excellent in reducing the level of blood glucose, especially HgbA1c level, weight reduction, lowering blood pressure, lowering cholesterol, constipation (100%) and menopausal symptoms (hot flushed and sweats (90%), psoriasis, eczema and an anti-aging effect. There has been no complication of hypothyroidism was found since 1997, and soybeans have been found to help thyroid function.

In my patent, some examples are contained in mixture of both soy and dairy milk, attempting to offer the advantage of both types of protein in one product. Recently, a combination of two different classes may be used as initial pharmacotheraphy when there has been marked hyperglycemia and /or hypertension after meal plan and exercise have failed. I used this combination which you can use both texturized soy milk and texturized soy and dairy milk. The major proteins in milk are casein and whey proteins, which do offer significant health benefits. For example lactoferrin a whey protein appears to offer a wide spectrum of health benefits, including antimicrobial and immunomodulatory action, which help prevent infection. Lactoferrin promotes growth, which has implications for human health, particularly for children. They may also have antioxidant activity. Whey proteins also contain smaller peptides derived from various proteins, which are called bioactive peptides. Whey proteins are comprised of high-biological-value protein and proteins that have different functions I find combinations of whole soy and whey proteins, which do offer significant health benefit in future (In my practice,

chronic eczema and silvery scales on bright red in psoriasis patients disappeared and helps kidney functions [proteinuria disappeared] after the consumption of texturized soy beverage after four weeks period).

To eat whole soybeans without liquefying, the whole soybeans will not completely absorb nutrients in the digestive system by chewing. This is due to the fact that most nutrients contain hidden in fiber cell walls.

CONCLUSION

A bioactive peptide has recently been isolated from soybeans and has been found to have potent antimitotic activity.

A number of phytochemicals in soybeans demonstrate anticarcinogenic activity. The physicochemical properties that affect the functional properties of proteins are related to the three-dimensional structure of proteins. The three-dimensional structure, which is determined by amino acid sequence, is the molecular basis for overall thermodynamic stability, charge distribution, and hydrophobic/hydrophilic properties (Damodaran 1994). Hence, one challenge is to understand the structure-function relationship at molecular levels. This understanding will lead to production of novel protein ingredients by selected modification procedures.
It is apparent that structural modification of soy proteins by enzymatic and chemical methods produce soy protein.

A number of soy protein supplements are widely available but the questioned whether these phytonutrients are as effective as whole soy proteins, which contains saponins, flavors, bioactive peptide and other nutrients (minerals and vitamins). Therefore, Texturized Soy Beverage (Whole Soy Milk) will to ensure the safety of these products to explore the full potential of soy proteins for food, protein quality and the health benefit.

I am enclosing a copy of letter from Antonia C. Novello, M.D., Commissioner of Health, State of New York, Department of Health, Corning Tower, Empire State Plaza, Albany, New York 12237.

The soluble fiber in soy and whole soybeans are very important in the prevention of colon cancer and Type 2 Diabetes Mellitus for the American people.

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Very truly yours,

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ANTONIA C. NOVELLO, M.D., M.P.H., Dr. P.H.
Commissioner

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August, 2005

Dear Colleague:

As a health care provider, you understand the toll colorectal cancer takes on the lives of men and women in New York State. Each year, over 11,600 New Yorkers are newly diagnosed with colorectal cancer, and over 4,400 New Yorkers die from this disease. Many studies show that regular screening reduces mortality from colorectal cancer. Reducing the number of deaths from colorectal cancer depends on detecting and removing precancerous polyps, as well as detecting and treating cancer in its early stages.

I am writing to ask you to join us in improving the screening rates for colorectal cancer in New York State by participating in our campaign to promote colorectal cancer screening. The New York State Department of Health (NYSDOH) will utilize "Screen for Life" public media campaign materials developed by the Centers for Disease Control. Samples of these materials are included for your use with patients. As a health care provider, you can play a major role in influencing the screening behavior of your patients. Studies show that patients are more likely to comply with screening recommendations when made by their personal physician. A copy of the American Cancer Society's current screening guidelines is also included for your reference.

The NYSDOH is working to assure that all men and women have access to early detection and treatment for colorectal cancer by funding local initiatives throughout the State. These projects are designed to increase the availability of free colorectal cancer screening to underserved and uninsured populations age 50 and older. Enclosed is a directory of names and phone numbers to call for information about each local screening project. This information can also be found on the NYSDOH web site. Please refer to:

http://www.health.state.ny.us/nysdoh/cancer/center/partnerships.htm

I encourage you to use the enclosed materials as you discuss this important issue with your patients. To request additional free copies of the enclosed patient publications, use the order form provided. If you would like additional information, please feel free to call the Cancer Services Program at (518) 474-1222.

Sincerely,

Antonia C. Novello, M.D., M.P.H., Dr.P.H.
Commissioner of Health

Enclosures